The Effect of Work Systems, Work Environment, and Work Motivation to Employee Work Discipline
(Case Study of Attendance System at University of Muhammadiyah Jember)

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Abstract

This study aims to determine and analyze the extent to which the effect of the fingerprint attendance work system, work environment, and work motivation to work discipline. The hypothesis in this study is the fingerprint attendance work system, work environment, and work motivation partially influence work discipline. The object of this research is the employees of the Muhammadiyah University Jember which has a total population of 240 people using the proportionate stratified random sampling technique. Data collection techniques using observation and questionnaires. The analysis used is the validity test, reliability test, multiple linear regression analysis, normality test, multicollinearity test, heteroscedasticity test, linearity test, autocorrelation test, t-test, and coefficient of determination. The results showed that the work attendance system was not significant for work discipline, work environment, and work motivation had a positive and significant effect on work discipline.

Keywords: attendance work system, work environment, work motivation, work discipline

Abstrak

Penelitian ini bertujuan untuk mengetahui dan menganalisis sejauh mana pengaruh dari sistem kerja absensi *fingerprint*, lingkungan kerja, dan motivasi kerja terhadap disiplin kerja. Hipotesis dalam penelitian ini sistem kerja absensi *fingerprint*, lingkungan kerja, dan motivasi kerja berpengaruh terhadap disiplin kerja secara parsial. Objek penelitian ini ialah pegawai Universitas Muhammadiyah Jember yang memiliki jumlah populasi sebanyak 240 orang menggunakan teknik *proportionate stratified random sampling*. Teknik pengumpulan data menggunakan observasi dan kuesioner. Analisis yang digunakan ialah uji validitas, uji reliabilitas, analisis regresi linier berganda, uji normalitas, uji multikolinearitas, uji heteroskedastisitas, uji linearitas, uji autokorelasi, uji t, dan koefisien determinasi. Hasil penelitian menunjukkan bahwa sistem kerja absensi tidak signifikan terhadap disiplin kerja, lingkungan kerja dan motivasi kerja berpengaruh positif dan signifikan terhadap disiplin kerja.

Kata kunci: sistem kerja absensi; lingkungan kerja; motivasi kerja; disiplin kerja

INTRODUCTION

Universities as institutions for providing higher education have a very large role in the national development framework. There are two main tasks carried out by universities, first is educating the nation's sons and daughters to master science and technology, while the second is locomotive for national and regional development including preparing future leaders of the nation who have high morals and have a democratic culture (Effendy, 2003). One application of technology to achieve the goal of increasing work discipline is by using a fingerprint attendance machine. The attendance system is a system that exists in an agency that is used to record the attendance list of each member of the agency. The attendance system also can provide accurate reports.

The physical work environment is all physical conditions that exist around the workplace that can affect employees or employees either directly or indirectly, while the non-physical work environment is all conditions that occur related to work relationships (Sedarmayanti, 2011). both relationships with superiors, co-workers, or subordinates. The work environment will affect the emotions of employees. A conducive work environment at the agency can provide benefits for employees to create work discipline and work spirit. Motivation can be defined as a very important issue in any group of people who work together to achieve organizational goals. Motivation is the provision of a driving force that creates one's work enthusiasm so that they want to work together, work effectively, and integrate with all their power and efforts to achieve satisfaction (Hasibuan, Manajemen Sumber Daya Manusia, 2011). The implementation of an organization's activities without a supportive work motivation can result in decreased work discipline automatically and will have a direct effect on other activities. Work discipline is a tool used by managers to communicate with employees so that they are willing to change behavior as well as an effort to increase one's awareness and willingness to comply with all company regulations (Rivai, 2011). The high work discipline of employees will be able to achieve maximum work goals, be it time discipline, rules, or regulations that have been set at the University of Muhammadiyah Jember.

University of Muhammadiyah Jember is one of the Private Universities belonging to the Muhammadiyah Association, was established based on the Charter of the Establishment of the Jember Muhammadiyah Higher Education (UM Jember). The University of Muhammadiyah Jember as a service company offers more quality as an attraction for its students. The qualities offered include academic quality, services, updated curriculum, infrastructure, and so on. From observations made by researchers, it can be seen that the working environment of the University of Muhammadiyah Jember has been improved, which initially still needs improvement in the workspace such as setting the air temperature which is still not said to be good, air ventilation that works poorly, and the layout looks monotonous. This causes boredom at work. Therefore, this paper aims to analyze the extent to which the relevance of the fingerprint attendance work system, work environment, and work motivation to work discipline in the University of Muhammadiyah Jember.

LITERATURE REVIEW

Human resource management is the withdrawal, selection, development, maintenance, and use of human resources to achieve both individual and organizational goals (Handoko, 2011). The attendance system is a system that exists in an agency that is used to record the attendance list of each member of the agency. The *fingerprint* comes from English which means fingerprint, fingerprints are the lines on the skin of the fingertips (Nugroho, 2009). Fingerprints serve to provide greater friction so that the fingers can hold objects more tightly. *Fingerprint* attendance is attendance by using fingerprints

on the skin of the palms which have an accuracy rate of 90-95% (Suyadi, 2010). The *fingerprint* attendance system indicators are easy to use, high accuracy, safe from data misuse, time effectiveness, and cost-efficiency. The work environment is everything that is around the workers and that can affect them in carrying out the tasks they are assigned everything that is around the workers and that can affect them in carrying out the tasks they are assigned (Nitisemito, 2012). The type of work environment is divided into 2, namely the physical work environment and the non-physical work environment (Sedarmayanti, 2011). Indicators of the work environment are room lighting, cleanliness, air exchange, security, relations between employees, and relationships with superiors.

Motivation is the provision of a driving force that creates enthusiasm for one's work so that one is willing to work together, work effectively, and be integrated with all their efforts to achieve satisfaction. Indicators of work motivation are remuneration, company policies, supervision, morale, and encouragement to achieve goals (Hasibuan, Manajemen Sumber Daya Manusia, 2011). Work discipline is a condition that causes or provides encouragement to employees to act and carry out all activities following established norms or rules (Zainul, 2012). Indicators of work discipline include complying with all organizational regulations, using time effectively, responsibilities in work and assignments, and the level of absenteeism (Hasibuan, 2016). Fadila Risfa, Maryani Septiana (2019), research defines the practical dimension of fingerprint attendance has a positive but not significant effect on employee discipline. The accurate dimension of fingerprint attendance has a positive but not significant effect on employee discipline. The high-security dimension of fingerprint attendance has a positive and significant effect on employee discipline. The hardware dimension of fingerprint attendance has a positive but not significant effect on employee discipline. Practical dimensions, accuracy, high security, and fingerprint attendance hardware simultaneously have a positive and significant effect on employee discipline. Rika, et al (2018) research resulted that there is a significant effect of the work environment on work discipline, the work environment on morale, and an indirect effect on the work environment on work discipline. Yapentra (2017) research suggested the simultaneous leadership and motivation have a significant effect on employee work discipline, while partially leadership has a significant effect on work discipline, but motivation has no significant effect on employee work discipline.
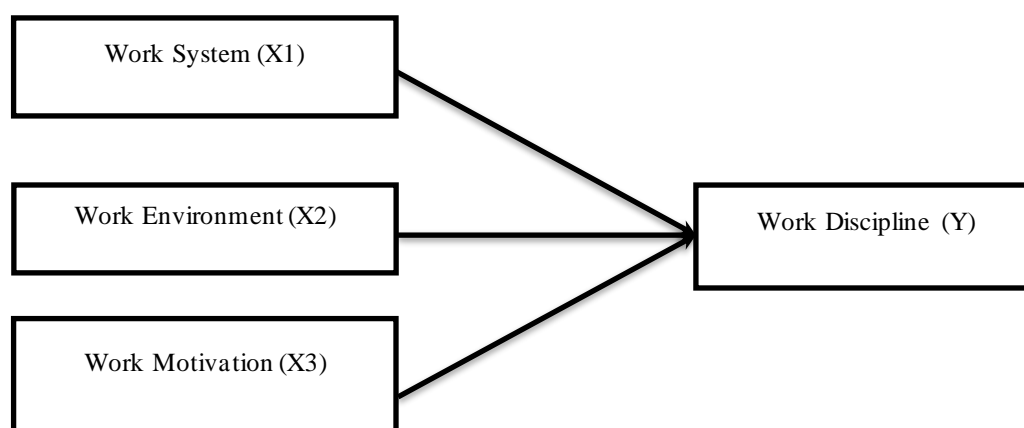

Figure 1. Conceptual Framework

RESEARCH METHOD

The type of research used is qualitative data which is quantified. The population in this study was 240 employees at the University of Muhammadiyah Jember consisting of 133 permanent employees and 107 non-permanent employees using the proportionate stratified random sampling technique. The sample in this study was 70 people. The object of this research is the employees of the Muhammadiyah University Jember. Data collection techniques using observation and questionnaires. The analysis used is the validity test, reliability test, multiple linear regression analysis, normality test, multicollinearity test, heteroscedasticity test, linearity test, autocorrelation test, t-test, and coefficient of determination.

RESULT AND DISCUSSION

The correlation between each variable indicator of work system (X_1), work environment (X_2), work motivation (X_3), and work discipline (Y) showed significant results with r-count > r-table. It can be concluded that all statement items of work system variables (X_1), work environment (X_2), work motivation (X_3) and work discipline (Y) are valid.

Table 1. Validity Test

Variable	Item	R-count	Rtable	Sig	Ket
Work System (X1)	X1.1	0,786	0,235	0,000	Valid
	X1.2	0,628	0,235	0,000	Valid
	X1.3	0,726	0,235	0,000	Valid
	X1.4	0,736	0,235	0,000	Valid
Work Environmet (X2)	X2.1	0,567	0,235	0,000	Valid
	X2.2	0,648	0,235	0,000	Valid
	X2.3	0,721	0,235	0,000	Valid
	X2.4	0,725	0,235	0,000	Valid
	X2.5	0,598	0,235	0,000	Valid
	X2.6	0,645	0,235	0,000	Valid
	X2.7	0,701	0,235	0,000	Valid
	X2.8	0,732	0,235	0,000	Valid
Work Motivation (X3)	X3.1	0,534	0,235	0,000	Valid
	X3.2	0,643	0,235	0,000	Valid
	X3.3	0,776	0,235	0,000	Valid
	X3.4	0,790	0,235	0,000	Valid
Work Dicipline (Y)	Y.1	0,740	0,235	0,000	Valid
	Y.2	0,749	0,235	0,000	Valid
	Y.3	0,613	0,235	0,000	Valid
	Y.4	0,630	0,235	0,000	Valid
	Y.5	0,821	0,235	0,000	Valid
	Y.6	0,701	0,235	0,000	Valid

Table 2. Reliability Test

Research Variable	*Cronbach's Alpha if item deleted*	Standart Reliability	Inf
Work System (X1)	0,728	0,60	Reliable
Work Environment (X2)	0,802	0,60	Reliable
Work Motivation (X3)	0,622	0,60	Reliable
Work Dicipline (Y)	0,794	0,60	Reliable

Reliability testing on the work system variable instrument (X_1) with Cronbach's Alpha value of 0.728. Work environment Results (X_2) with *Cronbach's Alpha* value of 0.802. Work motivation (X_3) with Cronbach's Alpha value of 0.622 and work discipline (Y) with Cronbach's Alpha value of 0.794. It can be concluded that the research instrument in the form of a questionnaire is reliable because Cronbach's Alpha is greater than 0.60.

Table 3. Multiple Linear Regression Analysis

Variable	Regression Coeficient	Sig.	Inf
Konstan	-1,118	-	-
Work System (X1)	0,225	0,072	Not Significant
Work Environment (X2)	0,399	0,000	Significant
Work Motivation (X3)	0,530	0,001	Significant

$$Y = -1,118 + 0,225 + 0,399 + 0,530 + e$$

Based on the above equation, the constant value is -1.118 which means that the value of the independent variables of work system, work environment, and work motivation is equal to zero, then employee work discipline at the University of Muhammadiyah Jember is -1.118 units. The regression coefficient value of the Work System variable is positive at 0.225, meaning that each increase in one unit of the variable will increase work discipline by 0.225. The regression coefficient value of the work environment variable is positive at 0.399, meaning that each increase in one unit of the variable will increase work discipline by 0.399. The regression coefficient value of the work motivation variable is positive at 0.530, meaning that every increase in one unit of the variable will increase work discipline by 0.530.

Table 4. Normality Test

Variable	*Kolmogorov Smirnov value*	Information
Work System (X1)	0,334	Normal Distribution
Work Environment (X2)	0,504	Normal Distribution
Work Motivation (X3)	0,158	Normal Distribution
Work Dicipline (Y)	0,558	Normal Distribution

The probability or significance value of the work system variable (X_1) is 0.334. The work environment variable (X_2) is 0.504. The work motivation variable (X_3) is 0.158. The work discipline variable (Y) is 0.558. So it can be stated that the data in this study are normally distributed.

Table 5. Multicollinearity Test

Model	*Collinearity Statistics*		Information
	VIF	Tolerance	
Work System (X1)	1,835	0,545	There is no multicollinearity
Work Environment (X2)	1,838	0,544	There is no multicollinearity
Work Motivation (X3)	1,497	0,668	There is no multicollinearity

The results of the heteroscedasticity test using a scatterplot, the resulting points in the image are spread and irregularly shaped so that it can be said that there is no heteroscedasticity.

Table 6. Linearity Test

Variable	*Deviation from Linearity value*	Information
Work System (X1)	0,180	Linear
Work Environment (X2)	0,666	Linear
Work Motivation (X3)	0,979	Linear

The significance value of the deviation of the work system variable (X_1) is 0.180. The work environment variable (X_2) is 0.666. The work motivation variable (X_3) is 0.979. So it can be stated that each independent variable has a linear relationship with the dependent variable.

Table 7. Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.795ᵃ	.632	.610	2.124	1.622

The Durbin Watson value is 1.629, which in the Durbin Watson table criteria lies between the values 1.55–2.46, which means there is no autocorrelation.

Table 8. T-test

Variable	Sig	Information
Work System (X1)	0,072	Not Significant
Work Environment (X2)	0,000	Significant
Work Motivation (X3)	0,001	Significant

The effect of each independent variable on the dependent variable is the work system variable (X_1) to work discipline variable (Y), the level of significance (α) of the work system variable (X_1) is $0.072 > 0.05$. This means that the work system has no significant effect on work discipline (H_1 is accepted). work environment variable (x_2) to work discipline variable (y), the significance level (α) of the work environment variable (x_2) is $0.000 < 0.05$. This means that the work environment has a significant effect on work discipline (H2 is accepted). Work motivation variable (X_3) on work discipline variable (Y), the level of significance (α) of the work motivation variable (X_3) is $0.001 < 0.05$. This means that work motivation has a significant effect on work discipline (H_3 is accepted).

Table 9. Multiple Coefficient of Determination Test (R^2)

Variable	R Square	Adjusted R Square
1	.799	.622

The variable has an Adjusted R Square value of 0.622. This means that the dependent variable of Work Discipline is influenced by the independent variables of Work System, Work Environment, and Work Motivation by 62.2%. This value indicates that overall the independent variables affect 62.2% of

the dependent variable, while the remaining 37.8% is explained by other variables not discussed in this study, such as leadership variables, performance variables, and so on. The results of multiple linear regression analysis on the t-test against the first hypothesis (H_1) show similarities, namely in H1 the fingerprint attendance work system has no significant effect on work discipline, while the results of the t-test regression analysis show that the work system has no significant effect on work discipline by looking at the significance level value is 0.072 and the regression coefficient is positive at 0.225. This means that the work system has no significant effect on employee work discipline at the Muhammadiyah University of Jember.

The results of multiple linear regression analysis on the t-test of the second hypothesis (H_2) indicate that the work environment has a significant effect on work discipline by looking at the significance level of 0.000 and the positive regression coefficient of 0.399. The increasing work environment seen from the indicators of the work environment (room lighting, cleanliness, air exchange, security, relations between employees, and superiors) will have implications for increasing employee discipline at the Muhammadiyah University of Jember.

The results of multiple linear regression analysis on the t-test of the third hypothesis (H_3) indicate that work motivation has a significant effect on work discipline by looking at the significance level of 0.001 and the positive regression coefficient of 0.530. Increasing employee motivation as seen from work motivation indicators (remuneration, company policies regarding wages, morale, and encouragement to move forward) will have implications for increasing employee discipline at the Muhammadiyah University of Jember.

CONCLUSION

Based on the results of the analysis and discussion that the researchers explained, it can conclude the finding as the *fingerprint* attendance system is not significant to the work discipline of employees at the University of Muhammadiyah Jember. The work environment has a positive and significant effect on employee work discipline at the University of Muhammadiyah Jember, the increasing work environment seen from the indicators of the work environment (room lighting, cleanliness, air exchange, security, relations between employees, and superiors) will have implications for increasing employee discipline at the University of Muhammadiyah Jember. The work motivation has a positive and significant effect on employee work discipline at the University of Muhammadiyah Jember, increasing employee motivation as seen from work motivation indicators (remuneration, company policies regarding wages, morale, and encouragement to move forward) will have implications for increasing employee discipline at the University of Muhammadiyah Jember.

REFERENCES

Effendy, O. (2003). *Ilmu, Teori dan Filsafat Komunikasi*. Bandung: Citra Aditya Bakti.

Handoko, T. H. (2011). *Manajemen Personalia dan Sumber Daya Manusia*. Jakarta: Salemba Empat.

Hasibuan, M. S. (2011). *Manajemen Sumber Daya Manusia*. Jakarta: PT Bumi Aksara.

Hasibuan, M. S. (2016). *Manajemen Sumber Daya Manusia*. Jakarta: PT Bumi Aksara.

Nitisemito, A. S. (2012). *Manajemen Sumber Daya Manusia*. Yogyakarta: BPFE UGM.

Nugroho, E. (2009). *Biometrika : Mengenal Sistem Identifikasi Masa Depan.* Yogyakarta: Andi Offset.

Rika, D. N., Siti, E., & Cahyo, M. (2018). Pengaruh Lingkungan Kerja Terhadap Disiplin Kerja dan Semangat Kerja Karyawan (Studi Pada Karyawan PDAM Kota Malang). *Jurnal Administrasi Bisnis (JAB), 58*.

Rivai, V. (2011). *Manajemen Sumber Daya Manusia untuk Perusahaan dari Teori ke Praktek.* Jakarta: PT Raya Grafindo Persada.

Sedarmayanti. (2011). *Manajemen Sumber Daya Manusia, Reformasi Birokrasi dan Manajemen Pegawai Negeri Sipil.* Bandung: PT Refika Aditama.

Suyadi. (2010). *Rahasia Sidik Jari.* Jakarta: Flash Book.

Yapentra, A. (2017). Pengaruh Kepemimpinan dan Motivasi Terhadap Disiplin Kerja Karyawan PT. Posmetro Mandau. *Riau Economics and Business, 8*.

Zainul, H. M. (2012). Pengaruh Lingkungan Kerja dan Disiplin Kerja serta Motivasi Kerja Terhadap Kinerja Karyawan Perusahaan Daerah Air Mineral (PDAM). *WIGA*, 2.